



CAS STNext® Webinar

SEARCHING FOR CHINESE PATENT DOCUMENTS

Jim Brown, FIZ Karlsruhe

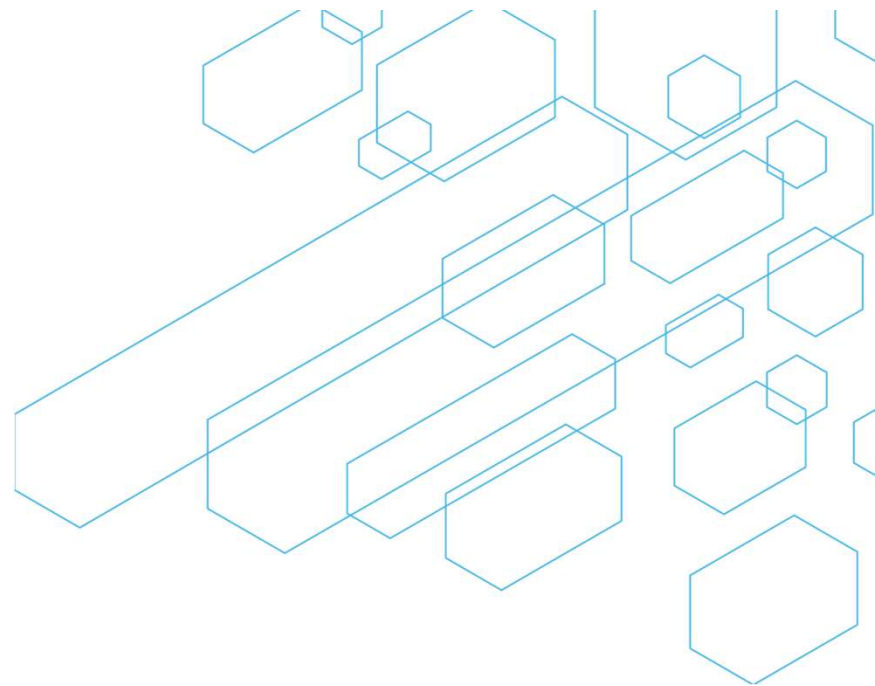
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 **FIZ Karlsruhe**
Leibniz Institute for Information Infrastructure

CAS 
A division of the
American Chemical Society

Agenda

- Databases with Chinese patent information
 - CAplus, DWPI, INPA, CNFULL, REAXYSFILEBIB
- Chinese dual filings
- Single member patent families in CAplus
- Legal status info in INPA



Background of Chinese patents

- First granted Chinese patent - 1985
- The amount of Chinese documents published has exploded over the last 39 years
- Dual filing – patent application and utility model filed on the same day

Chinese kind codes

- CNA – Unexamined patent application
- CNA8 – Corrected front page of unexamined application
- CNA9 – Corrected complete unexamined application
- CNB – Examined application (from 19850401 until 19921231) or granted patent (from April 7, 2010)
- CNB8 – Corrected front page of granted patent
- CNB9 – Corrected complete granted patent
- CNC – Granted patent (from April 1, 1985 to April 6, 2010)

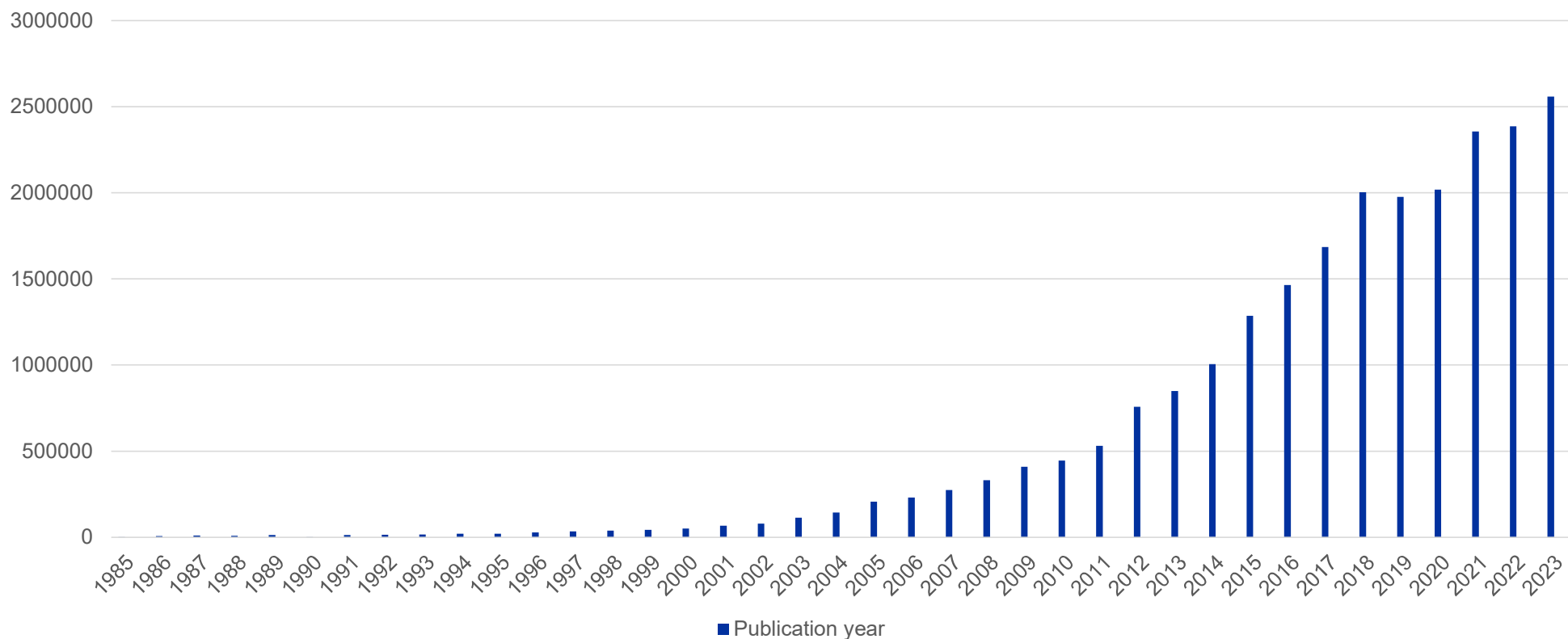
Chinese kind codes

- CNC8 – Corrected front page from granted patent
- CNC9 – Corrected full specification of granted patent
- CNK1 – Non-official translation of CNA document – not issued by patent office
- CNK2 – Non-official translation of CNB document – not issued by patent office
- CNK3 – Non-official translation of CNC document – not issued by patent office
- CNK4 – Non-official translation of CNU document – not issued by patent office
- CNK5 - Non-official translation of CNY document – not issued by patent office

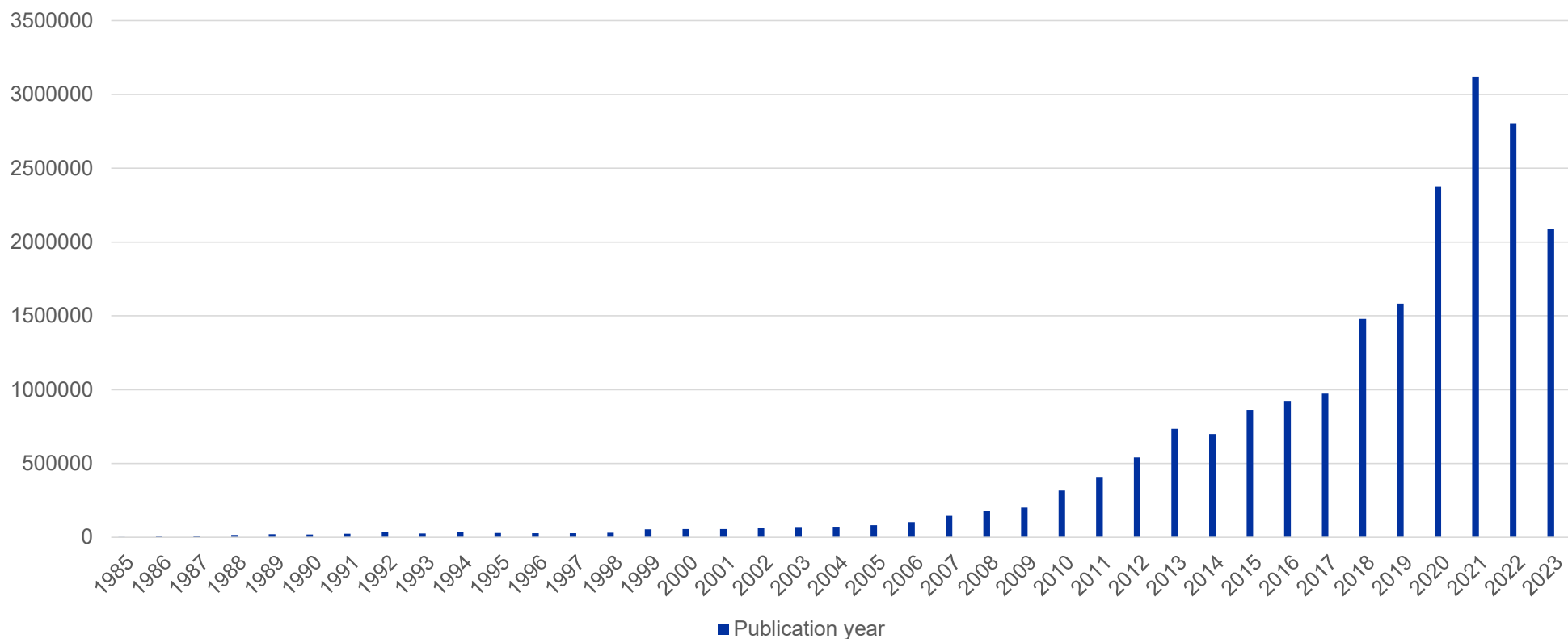
Chinese kind codes

- CNS – Design application (from April 1, 1985 to August 28, 2007) or registered design patent (from August 29, 2007 forward)
- CNS8 – Reissue of front page of design document
- CNS9 – Reissue of complete design document
- CNU – Utility model application (from April 1, 1985 to August 28, 2007) or registered design (from April 7, 2010 forward)
- CNU8 – Corrected front page from utility model (from April 7, 2010 forward)
- CNU9 – Corrected full specification of utility model (from April 7, 2010 forward)
- CNY – Granted patent for utility model (from April 1, 1985 to April 6, 2010)

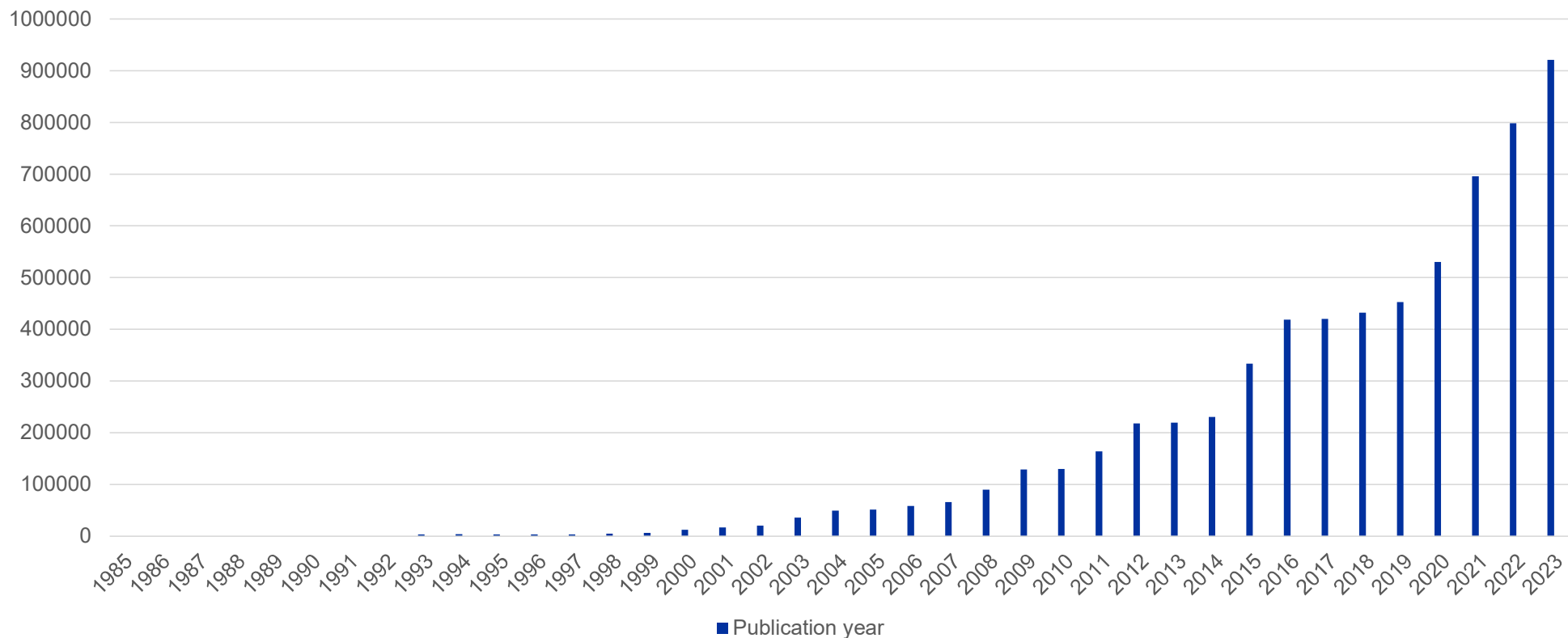
Unexamined patent application documents (according to CNFULL – 2/23/2024)



Chinese Utility documents (according to CNFULL – 2/28/2024)



Granted patent documents (according to CNFULL – 2/23/2024)



CAplus

- Produced by CAS
- Value-add database of patent family records and non-patent literature records
- Chemistry and Biology focused, but other disciplines can be included as well
- Patent assignee standardization
- English title and abstract (originally machine translation, then human translation)
- Patent status indicators
- Over 9 million patent family records include Chinese documents

CAplus – Chinese kind code counts as of 2-21-2024

=> e cna/pk

E1	221	CLU1/PK
E2	122	CLY/PK
E3	8684491	--> CNA/PK
E4	82	CNA9/PK
E5	3012001	CNB/PK
E6	284335	CNC/PK
E7	1	CNC9/PK
E8	597952	CNU/PK
E9	16	CNU9/PK
E10	18761	CNY/PK
E11	8100	COA1/PK
E12	19808	COA2/PK

Derwent World Patents Index (DWPI)

- Produced by Clarivate
- Value-add database of patent family records
- Covers all disciplines
- Assignee standardization/PACOs
- English translation of title, abstract and all claims from June 2007
- Examiner citations from 2010
- Numeric Property Search
- Over 35 million patent family records include Chinese documents

DWPI – Chinese kind code counts as of 2-21-2024

=> e cna/pk 16

E1	10	CHC1/PK
E2	1	CHC9/PK
E3	17224098	--> CNA/PK
E4	1091	CNA8/PK
E5	108	CNA9/PK
E6	5942949	CNB/PK
E7	750	CNB8/PK
E8	675	CNB9/PK
E9	556461	CNC/PK
E10	1	CNC8/PK
E11	18972507	CNU/PK
E12	1540	CNU8/PK
E13	467	CNU9/PK
E14	582940	CNY/PK
E15	113958	CSA/PK
E16	1	CSA1/PK

INPADOCDB

- Produced by the European Patent Office and FIZ Karlsruhe
- Database of patent family records
- Covers all disciplines
- Calculated expiration dates
- Patent status indicators
- Over 36 million patent family records include Chinese documents
- Titles and abstracts enter database in Chinese; later an English title and abstract are available
- Title, abstract, inventor and patent assignee are available as display fields with Chinese characters

INPADOCDB kind code counts as of 2/21/2024

=> e cna/pk 17

E1	1339	CLU1/PK
E2	5	CLY/PK
E3	17102183	--> CNA/PK
E4	1082	CNA8/PK
E5	109	CNA9/PK
E6	5900892	CNB/PK
E7	741	CNB8/PK
E8	661	CNB9/PK
E9	554653	CNC/PK
E10	3	CNC8/PK
E11	4	CNC9/PK
E12	299	CNS/PK
E13	19127563	CNU/PK
E14	1535	CNU8/PK
E15	469	CNU9/PK
E16	1307652	CNY/PK
E17	14635	COA1/PK

CNFULL

- Produced by LexisNexis
- Full text patent database
- English translations
- 1985-present
- Includes 8 million design patents with Locarno classifications
- Key terms
- Numeric Property Search
- Search option for claims group (/CLM.CG) and independent claims (/CLM.IC)
- Over 46 million records
- Title, abstract, inventor and patent assignee are available as display fields with Chinese characters

CNFULL kind code counts as of 2/21/2024

```
=> E CNA/PK 25
```

E1	2	B/PK
E2	1	C/PK
E3	17552971	--> CNA/PK
E4	1116	CNA8/PK
E5	112	CNA9/PK
E6	6084680	CNB/PK
E7	762	CNB8/PK
E8	685	CNB9/PK
E9	576519	CNC/PK
E10	3	CNC8/PK
E11	4	CNC9/PK
E12	364	CNK1/PK

E13	11	CNK2/PK
E14	18	CNK3/PK
E15	29	CNK4/PK
E16	26	CNK5/PK
E17	8439642	CNS/PK
E18	492	CNS8/PK
E19	1400	CNS9/PK
E20	19182786	CNU/PK
E21	1579	CNU8/PK
E22	474	CNU9/PK
E23	1309546	CNY/PK
E24	1	S/PK
**** END OF FIELD ****		

REAXYSFILEBIB

- Produced by Elsevier
- Has patent family information
- Chemical indexing available from 2016
- 1985-present
- Over 26 million records

REAXYSFILEBIB kind code counts as of 2/22/2024

=> E CNA/PK 25		
E1	648	CLS1/PK
E2	972	CLU1/PK
E3	21466550	--> CNA/PK
E4	8427	CNA8/PK
E5	573	CNA9/PK
E6	10835098	CNB/PK
E7	2999	CNB8/PK
E8	6864	CNB9/PK
E9	2320771	CNC/PK
E10	13	CNC8/PK
E11	12	CNC9/PK
E12	255	CNK1/PK

E13	23	CNK2/PK
E14	93	CNK3/PK
E15	10	CNK4/PK
E16	8	CNK5/PK
E17	15974	CNS/PK
E18	5201322	CNU/PK
E19	1095	CNU8/PK
E20	387	CNU9/PK
E21	236091	CNY/PK
E22	190158	COA1/PK
E23	524470	COA2/PK
E24	242	COU1/PK
E25	318481	CRA/PK

Timeliness of Chinese documents

- CAplus – less than a week for CNA documents
- DWPI – about four weeks for CNA documents
- INPA – about three weeks for CNA documents
- CNFULL – less than a week for CNA documents

Impact of Chinese documents

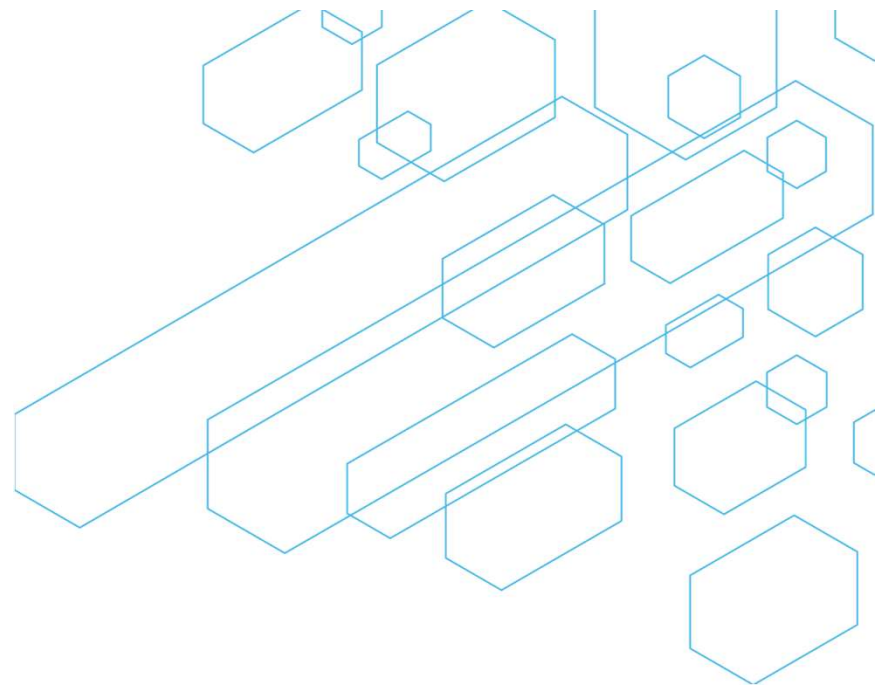
- As of 2/23/2024 – CAplus has 19,918,562 patent family records
 - 9,319,676 have a Chinese member (>46%)
 - 7,850,838 have a Chinese document as the basic (>39%)
 - 4,828,795 after taking out single member DEAD records (>24%)
- As of 2/23/2024 – DWPI has 62,426,624 patent family records
 - 35,574,468 have a Chinese member (>56%)
 - 32,805,290 have a Chinese document as the basic (>52%)

Impact of Chinese documents

- CAplus has 1,173,254 patent family records with a publication year of 2023 for the basic patent
 - 785,501 have a Chinese document as the basic (>66%)
- DWPI has 4,397,060 patent family records with a publication year of 2023 for the basic patent
 - 3,583,103 have a Chinese document as the basic (>81%)

Agenda

- Databases with Chinese patent information
- CAplus, DWPI, INPA, CNFULL, REAXYSFILEBIB
- **Chinese dual filings**
- Single member patent families in CAplus
- Legal status info in INPA



Chinese dual filings

- The Chinese patenting system allows for parallel filings of a patent application and a utility model on the same day
- Quicker coverage with utility, stronger patent protection with patent grants
- These two documents usually do not share any priority/application information, so typically they would be in two separate patent families
- CAplus, DWPI and INPAFAMDB databases try to pull these disparate documents into the same patent family – non-convention equivalents
- CNFULL does not have non-convention equivalents so these two documents will be two separate records in CNFULL

Chinese dual filings - CAplus

```
L3 ANSWER 2 OF 22959 HCAPLUS COPYRIGHT 2024 ACS on STN
PatentPak PDF | PatentPak PDF+ | PatentPak Interactive
AN 2024:296751 HCAPLUS Full-text
DN 185:313872
TI Multilayer reflective composite and preparation method therefor
IN Pan, Rui; Wu, Laixi; Wang, Junlin
PA Heyu Renewable Technology Co., Ltd., Peop. Rep. China
SO PCT Int. Appl., 27pp.
CODEN: PIXXD2
DT Patent
LA Chinese
FAN.CNT 3
PPPI
```

PATENT NO.	KIND	DATE	LANGUAGE	PatentPak
WO 2024027355	A1	20240208	Chinese	PDF PDF+ Interactive
CN 115216236	A	20221021	Chinese	PDF PDF+ Interactive
CN 218989143	U	20230509	Chinese	PDF

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PI
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PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2024027355	A1	20240208	WO 2023-CN100988	20230619
CN 115216236	A	20221021	CN 2022-10935565	20220804
CN 218989143	U	20230509	CN 2022-22042218	20220804

```
PRAI
```

CN 2022-10935565	A	20220804
CN 2022-22042218	U	20220804

```
PSPI
```

PATENT NO.	KIND	STATUS	STATUS DATE
CN 115216236	A	Alive	20221027
CN 218989143	U	Alive	20230518

Note that these two documents share the same application date but have different applications numbers.

Chinese dual filings - DWPI

L4 ANSWER 1 OF 1206712 WPIINDEX COPYRIGHT 2024 CLARIVATE on STN
AN 2024-14132W [2024013] WPIINDEX Full-text
TI Comprehensive index tester for testing effectiveness of outburst prevention measures, has front surface of tester shell assembled with internal camera, and front surface of tester shell is assembled with touch screen and key selecting area
DC S03; T04
IN CAO Y; HAN B; LI H; LI Y; LIAO W; LIU Z; QIN Z; XU X
PA (CHLY-C) CHINA COAL TECHNOLOGY & ENG GROUP SHENY; (CHLY-C) CHINA COAL TECHNOLOGY & ENG GROUP SHENYA; (SHAN-N) SHANXI CHANGPING COAL IND CO LTD
CYC 1
PI CN 117420047 A 20240119 (2024013)* ZH
CN 220380940 U 20240123 (2024013)# ZH
ADT CN 117420047 A CN 2023-10690072 20230612; CN 220380940 U CN 2023-21485127U
20230612
PRAI CN 2023-10690072 20230612
CN 2023-21485127U 20230612

Note that these two documents share the same application date but have different applications numbers.

Chinese dual filings - INPAFAMDB

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L5 ANSWER 2 OF 1195157 INPAFAMDB COPYRIGHT 2024 EPO/FIZ KA on STN

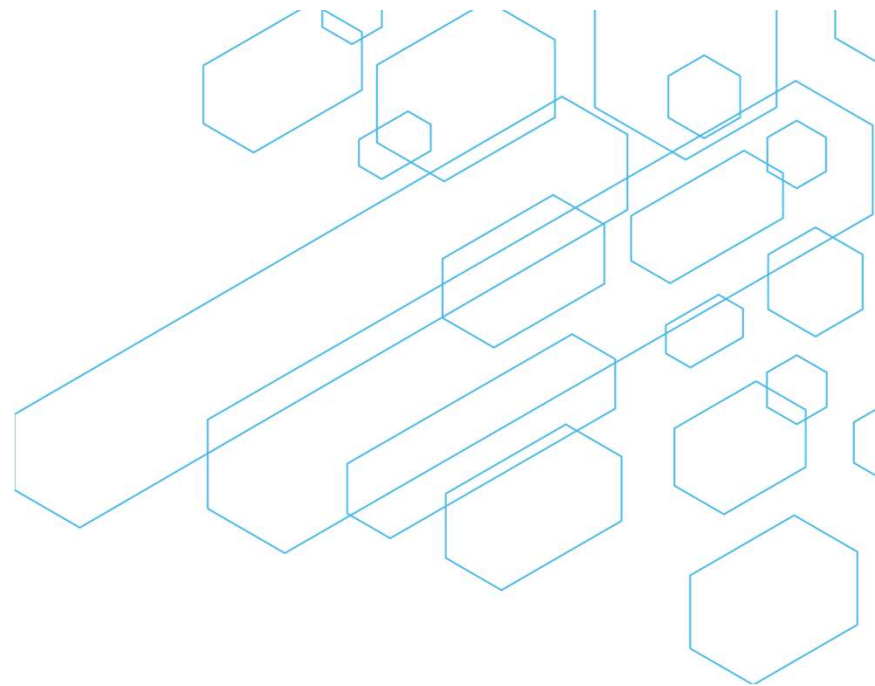
AN 86764795 INPAFAMDB EWF 202247 UWF 202406 EDF 20240208 UPFB 20240208 UPFC
20240208
TIEN Rapid ice storage device and ice storage air conditioner with same.
- ICE STORAGE AIR CONDITIONER, METHOD, APPARATUS, AND COMPUTER READABLE
STORAGE MEDIUM.
TIFR CLIMATISEUR DE STOCKAGE DE GLACE, PROCEDE, APPAREIL ET SUPPORT DE
STOCKAGE LISIBLE PAR ORDINATEUR.
TIO 快速蓄冰装置及具有
其的冰蓄冷空调。
- 冰蓄冷空调、方法、
装置和计算机可读存
储介质。
INS DENG SHUYAO, CN
INO 邓树耀
PAS GD MIDEA AIR CONDITIONING EQUIPMENT CO LTD, CN
- GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO LTD
PAO 广东美的制冷设备有
限公司
PI CN 217817170 U U 20221115
CN 117490153 A 20240202
WO 2024021600 A1 20240201
AI CN 2022-21944085U U 20220726
CN 2022-10882984 A 20220726
WO 2023-CN78754 W 20230228
PRAI CN 2022-10882984 A 20220726
CN 2022-21944085U U 20220726

FSTAT 2 priorities, 3 applications, 3 publications (3 EPO simple families)
2 countries, 9 legal status events
```

Note that these two documents share the same application date but have different applications numbers.

Agenda

- Databases with Chinese patent information
 - CAplus, DWPI, INPA, CNFULL, REAXYSFILEBIB
- Chinese dual filings
- Single member patent families in CAplus & INPADOCDB
- Legal status info in INPA



Chinese single member families - CAplus

- Oftentimes, a Chinese document will be the only document in a patent family
- Some of these documents are considered to be 'not of value' and have not been maintained
- These DEAD patents can easily be isolated/eliminated in CAplus and INPADOCDB searches by using the patent family count (/PN.CNT in CAplus, /PNC in INPADOCDB) and status indicator fields (/STI)

Chinese single member families with DEAD status - CAplus

```

=> S CN/PC AND 1/PN.CNT

      9326696 CN/PC
      10937829 1/PN.CNT
L1    5243096 CN/PC AND 1/PN.CNT

=> S L1 AND DEAD/STI

      11195372 DEAD/STI
L2    3025719 L1 AND DEAD/STI
    
```

L2 ANSWER 1 OF 3025719 HCAPLUS COPYRIGHT 2024 ACS on STN
 PatentPak PDF

AN 2023:1668028 HCAPLUS Full-text
 TI Automatic pole piece splitting device [Machine Translation].
 IN Zhang, Jianbin; Huang, Guowei; Yang, Xinbo; Rao, Weijing; Ye, Gongshun
 PA Shenzhen AES Automation Technology Co., Ltd., Peop. Rep. China
 UO SHENZHEN AES AUTOMATION TECH
 UOS SHENZHEN AES AUTOMATION TECH
 SO Faming Zhuanli Shenqing
 CODEN: CNXXEV
 DT Patent
 LA Chinese
 FAN.CNT 1
 PPPI

PATENT NO.	KIND	DATE	LANGUAGE	PatentPak
CN 116573475	A	20230811	Chinese	PDF

PI

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 116573475	A	20230811	CN 2023-10550882	20230516

PRAI CN 2023-10550882 20230516

PSPI

PATENT NO.	KIND	STATUS	STATUS DATE
CN 116573475	A	Dead	20240222

Chinese single member families with DEAD status - INPADOCDB

=> S CN/PC AND 1/PNC

38045661 CN/PC

58769840 1/PNC

L1 27809783 CN/PC AND 1/PNC

=> S L1 AND DEAD/STI

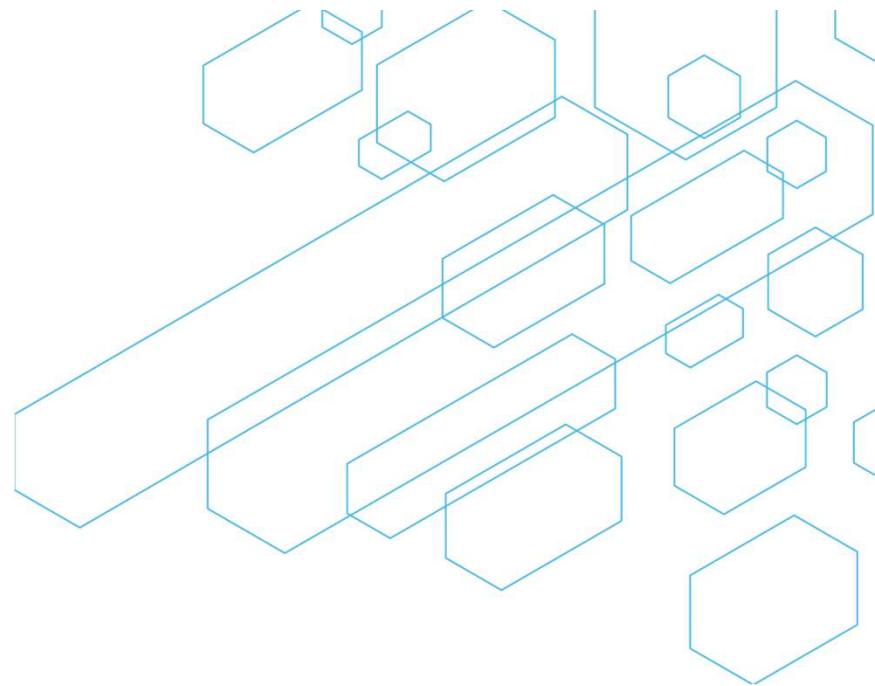
77373735 DEAD/STI

L2 12017269 L1 AND DEAD/STI

```
L2 ANSWER 1 OF 12017269 INPADOCDB COPYRIGHT 2024 EPO/FIZ KA on STN
AN 125902734 INPADOCDB ED 20240208 EW 202406 UP 20240208 UW 202406 Full-text
FN 86771525
TIO 紧固件构造
TL Chinese
INO 杨士圣
PAO 立兆股份有限公司
DT Utility Model
PI CN 220423295 U U 20240202 Chinese
PIT CNU UTILITY MODEL APPLICATION [FROM 19850401 UNTIL 19921231] or
REGISTERED UTILITY MODEL [FROM 20100407 ONWARDS]
DAV 20240202 printed-with-grant
STA GRANTED
XPD 20230725
STI DEAD
AI CN 2013-20448310U U 20130725 CNU Application for a utility model
PRAI CN 2013-20448310U U 20130725 CNU Application for a utility model
(Y,20240208)
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Agenda

- Databases with Chinese patent information
 - CAplus, DWPI, INPA, CNFULL, REAXYSFILEBIB
- Chinese dual filings
- Single member patent families in CAplus
- Legal status info in INPA



Chinese legal status - INPA

- Over 100 Chinese legal status actions
 - Allows for great precision
 - Ex. Chinese patent valid in Hong Kong
- FIZ Karlsruhe-generated legal status categories simplify search options
 - i.e., ORE – opposition, reexamination, LAP – Lapse (non-payment of fees)

Chinese legal status search example - INPA

- Keyword search for CDRs
- Limit to Chinese documents (CN/PC) with Hong Kong legal status (HK/LSCC)
- Isolate records with DEAD status indicator, remove them from set if needed

Chinese legal status search example - INPA

```
=> S CDR OR (COMPLEMEN? () DETER? () REGION?)

      9603 CDR
      2956 CDRS
      11485 CDR
              (CDR OR CDRS)
      338031 COMPLEMEN?
      5863530 DETER?
      2418329 REGION?
              3912 COMPLEMEN? (W) DETER? (W) REGION?
L1      13031 CDR OR (COMPLEMEN? (W) DETER? (W) REGION?)

=> S L1 AND CN/PC AND HK/LSCC

      38045661 CN/PC
      424445 HK/LSCC
L2      132 L1 AND CN/PC AND HK/LSCC
```

Not a comprehensive search strategy. For illustrative purposes only.

Chinese legal status search example - INPA

```
=> D KWIC

L2 ANSWER 1 OF 132 INPADOCDB COPYRIGHT 2024 EPO/FIZ KA on STN
PI CN 116496396 A 20230728

AN 122460821 INPADOCDB Full-text

LEGAL STATUS
20230929 CNREG REFERENCE TO A NATIONAL CODE
HKDE HK: REQUESTS TO DESIGNATE PATENT IN HONG KONG
HK 40088437
HK
ENP Entry into National Phase
W OTHER
.....20231005
ABEN . . . invention provides a CD70 binding molecule which comprises an
anti-CD70 nano antibody or an antigen binding fragment thereof, and a
complementary determining region CDR of the anti-CD70 nano
antibody comprises CDR1, CDR2 and CDR3. The invention also provides a
chimeric antigen receptor containing the. . .
```

Chinese legal status search example - INPA

```
=> S L2 AND DEAD/STI

77373735 DEAD/STI
L3      38 L2 AND DEAD/STI

=> D KWIC LS

L3: ANSWER 1 OF 38      INPADOCDB COPYRIGHT 2024 EPO/FIZ KA on STN
STI: DEAD
PI:  CN 109796533      A 20190524

AN  95203193 INPADOCDB Full-text

LEGAL STATUS
20200619 CNREG      REFERENCE TO A NATIONAL CODE
      HKDE          HK: REQUESTS TO DESIGNATE PATENT IN HONG KONG
                        HK 40009057
                        HK
                        ENP Entry into National Phase
                        W OTHER
                        .....20200625
ABEN . . . this invention relates to the antibodies described herein, and
binding fragments thereof, comprising the sequences of the VH, VL and
CDR polypeptides described herein, and the polynucleotides encoding
them. The invention also contemplates conjugates of anti-PCSK9
antibodiesand binding fragments thereof conjugated. . .
```

The legal status indicator DEAD shows that the document is determined to be no longer valid.

Chinese legal status search example - INPA

```
20130508 CNA      Patent application
                  CN 2018-11305039      A  20130508
                  APP Application Information
                  .....20190606
20190524 CNA      UNEXAMINED APPLICATION FOR A PATENT FOR INV.
                  CN 109796533          A  20190524
                  PRE Pre-grant Publication
                  .....20190606
20190524 CNPB01   PUBLICATION
                  PUB New or Withdrawn Publication
                  Q DOCUMENT PUBLICATION
                  .....20190613
20190618 CNSE01   ENTRY INTO FORCE OF REQUEST FOR SUBSTANTIVE EXAMINATION
                  EXA Examination, Search Report
                  D SEARCH AND EXAMINATION
                  .....20190711
20200619 CNREG    REFERENCE TO A NATIONAL CODE
                  HKDE                 HK: REQUESTS TO DESIGNATE PATENT IN HONG KONG
                  HK 40009057
                  HK
                  ENP Entry into National Phase
                  W OTHER
                  .....20200625
20220923 CNWD01   - INVENTION PATENT APPLICATION DEEMED WITHDRAWN AFTER
                  PUBLICATION
                  WTH Withdrawal, Refusal, etc.
                  B APPLICATION DISCONTINUATION
                  .....20221013
```

The last legal status action that determined the status flag of DEAD.

Chinese legal status search example - INPA

```
=> S L2 NOT L3

L4          94 L2 NOT L3

=> D KWIC STI

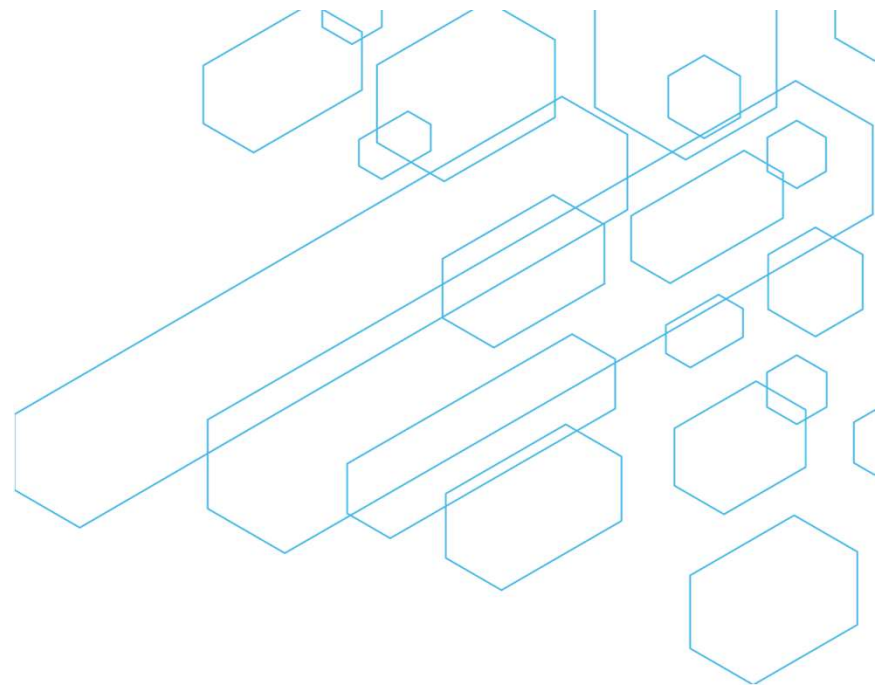
L4  ANSWER 1 OF 94.      INPADOCDB COPYRIGHT 2024 EPO/FIZ KA on STN
PI  CN 116496396        A 20230728

AN  122460821 INPADOCDB Full-text

LEGAL STATUS
20230929 CNREG          REFERENCE TO A NATIONAL CODE
      HKDE              HK: REQUESTS TO DESIGNATE PATENT IN HONG KONG
                        HK 40088437
                        HK
                        ENP Entry into National Phase
                        W OTHER
                        .....20231005
ABEN . . . invention provides a CD70 binding molecule which comprises an
anti-CD70 nano antibody or an antigen binding fragment thereof, and a
complementary determining region CDR of the anti-CD70 nano
antibody comprises CDR1, CDR2 and CDR3. The invention also provides a
chimeric antigen receptor containing the. . .
STI  ALIVE
```

Summary

- The amount of data coming from the Chinese patent office is presenting challenges to database producers
- So far, the producers have been able to maintain their quality standards
- CAS STNext has comprehensive Chinese patent data
 - First level data
 - Value added indexing in CAS and Derwent databases
 - Citations
 - Legal status



Resources

- STN Database Summary Sheets
 - CAplus - [CAplus Database Summary Sheet \(DBSS\) \(cas.org\)](#)
 - Derwent World Patents Index - [WPI Database Summary Sheet \(DBSS\) \(cas.org\)](#)
 - INPADOCDB - [INPADOCDB Database Summary Sheet \(DBSS\) \(cas.org\)](#)
 - CNFULL - [CNFULL Database Summary Sheet \(DBSS\) \(cas.org\)](#)
 - REAXYSFILEBIB - [REAXYSFILE Database Summary Sheet \(DBSS\) \(cas.org\)](#)
- EPO – Chinese patent searching overview - <https://www.epo.org/en/searching-for-patents/helpful-resources/asian/china>

Additional info

- STN additionally provides information for Taiwan
- TWFULL – Patents Full-Text of Taiwan, Province of China
- INPADOCDB/INPAFAMDB

Between problems
and progress
are connections
that matter



CONTACT

CAS

help@cas.org
cas.org

EMEA Help

EMEAhelp@cas.org